REMARKS/ARGUMENTS

Claims 1-11 and 16-18 are present in this application. By this Amendment, claims 1 and 16 have been amended, and claim 14 has been canceled. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Claims 1-11, 14 and 16-18 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,368,914 to Barrett in view of U.S. Patent No. 5,186,999 to Brambach. This rejection is respectfully traversed.

Brambach discloses a method of reinforcing a sheet like sandwich material by locally injecting a plastic material which solidifies to form a local reinforcement. In Brambach, this local reinforcement "replaces and/or melts" the previously present foam core. The materials used in Brambach are all thermoplastics or mixtures of thermoplastics possibly with fibre reinforcement. See col. 2, lines 50-64. The sandwich structure reinforced by Brambach "consists of a thermoplastic foam core material and two top layers consisting of a thermoplastic synthetic resin reinforced with a woven fabric, a knitted fabric, a fibrous web, or unidirectionally applied fibres."

Thus, in addition to the dimensional limitation previously discussed, the combination of Barrett and Brambach alleged in the Office Action to be obvious is impractical or does not meet the requirements of the independent claims as amended for several reasons.

Primarily, the core material injected in Brambach is a thermoplastic material, not a thermosetting material. It appears to be essential in Brambach that the injected material is a thermoplastic for three reasons. Firstly, the method of Brambach relies on the injected material to form a skin as it melts away the existing core so that a pressure build-up is possible to ensure that a local reinforcement is formed. See col. 2, lines 35-39 and col. 3, lines 14-22. Secondly, if

the two reacting components of a thermosetting material were injected, it is likely that the components would disperse within the core before properly reacting, potentially leading to an incomplete formation of the local reinforcement. Thirdly, the heat generated by the exothermic reaction that sets a thermosetting material would likely damage the thermoplastic outer layers, which according to Brambach is to be avoided. See col. 2, lines 40-49.

The independent claims have been amended to recite that the plastics or polymer material forming the core is a compact thermoset material. Support for this subject matter can be found in the specification at, for example, page 4, line 20. The use of a thermosetting material for the core provides an unexpected advantage. Whilst a thermoplastic material as disclosed in Brambach would potentially begin to soften at 50°C (col. 2, line 53), a thermosetting material would soften at a much higher temperature and generally not to the same degree. Thus, the use of a thermosetting core provides an additional advantage that the laminate according to the invention is more resistant to fires that may follow a ballistic or explosive event.

Additionally, Brambach discloses only the injection of a small amount of compact material to form a local reinforcement in a core otherwise formed of a foam. In the present invention, the core material is injected into an empty cavity, and a compact core is formed throughout the extent of the laminate member.

Still further, the injection methods taught by Brambach are impractical with metal outer plates of greater than 3 mm thickness as claimed and would not produce a solid core that bonds to metal outer plates. Bonding of the added reinforcement in Brambach to the outer layers of the sandwich structure is described, as far as Applicant can tell, only at col. 4, lines 38-60 in the context of a method in which the molten thermoplastic material is injected through the top layer. See col. 4, lines 44-46. At lines 52-54, it is clearly stated that the "good bonding of the local

reinforcement in the core to the top layers" is obtained only through this method of injection. Presumably the bond depends on a mechanical interlock between the injected reinforcement and the fibre reinforcement in the outer layer. Clearly, this method of injection is not possible when the outer layers are metal and have a thickness greater than or equal to 3 mm. Brambach also discloses at col. 4, line 65 to col. 5, line 9 using a "needle-shaped" injection nozzle which is "inserted through the top layer into the core." It appears that the injection nozzle in this alternative makes its own hole in the outer layers, which is clearly unfeasible with metal layers of thickness greater than or equal to 3 mm.

Thus, Applicant submits that Brambach does not actually teach a method of injection that is practicable with the outer metal layers of the present invention and does not teach that an injected core can be arranged to bond to the outer metal layers.

For at least these reasons, Applicant respectfully submits that Barrett and Brambach, taken singly or in combination, fall short of the invention defined in independent claims 1 and 16.

With regard to the dependent claims, Applicant submits that these claims are allowable at least by virtue of their dependency on an allowable independent claim.

Reconsideration and withdrawal of the rejection are respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to Deposit Account No. 14-1140.

Respectfully submitted,

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